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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,020	07/17/2003	Michael Ansorge,	01GV33354476	1687

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EXAMINER

HAN, QI

ART UNIT	PAPER NUMBER
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2626

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

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DETAILED ACTION

Response to Amendment

1. This communication is responsive to the applicant's preliminary amendment filed on 07/17/2003. The applicant(s) cancelled claims 1-12, and added new claims 13-43 (see the amendment: pages 3-11).

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The references listed in the Information Disclosure Statement submitted on 08/26/2003 have been considered by the examiner (see attached PTO-1449).

Specification

4. The disclosure is objected to because of the following informalities:
On page 5, line 12, the term "mars" appears to be --marks--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 13-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 13, the limitation “updating **the** first linear prediction filter using the short-term excitation word filtered by a second filter, the second filter having an order greater than or equal to 1 and coefficients thereof depending on the long-term gain for reducing a short-term excitation contribution when a long-term excitation gain is **greater than a threshold**” is indefinite because: (i) the specification shows the second filter for updating a separate prediction filter (PF) (that is not the PF (the first filter) for filtering output of adaptive dictionary as claimed, see Figs. 2 and 3), which conflicts with the claimed limitation; (ii) the limitation “the second filter having an order greater than or equal to 1...” has an indefinite upper bound of the order of the filter.

Regarding claims 13-19, the rejection is based on the same reason described for claim 13, because the dependent claims include at least one of the same or similar problematic limitations as claim 13.

Regarding claims 20, the rejection is based on the same reason described for claim 13, because the claim recites the same or similar problematic limitations as claim 13.

Regarding claims 21-27, the rejection is based on the same reason described for claim 20, because the dependent claims include at least one of the same or similar problematic limitations as claim 20.

Regarding claims 28, the rejection is based on the same reason described for claim 13, because the claim recites the same or similar problematic limitations as claim 13.

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Regarding claims 29-35, the rejection is based on the same reason described for claim 28, because the dependent claims include at least one of the same or similar problematic limitations as claim 28.

Regarding claims 36, the rejection is based on the same reason described for claim 13, because the claim recites the same or similar problematic limitations as claim 13.

Regarding claims 37-43, the rejection is based on the same reason described for claim 28, because the dependent claims include at least one of the same or similar problematic limitations as claim 28.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 28, 32-36 and 40-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (see the section of "Background of the Invention" in the specification) hereinafter referenced as ADMISSION in view of SU et al. (US 2001/0023395 A1) hereinafter referenced as SU.

As per **claim 28**, as best understood in view of the rejection under 35 USC 112 2nd, ADMISSION discloses well known coding device of the CELP type, such as ACELP, with recommendation ITU-TG 729 (the specification: page 1, lines 6-8), comprising:

“a sampling circuit for sampling speech to obtain successive voice frames each comprising a predetermined number of samples” (the specification: page 2, lines 1-10); and

“a processor for determining parameters of a linear prediction model for each voice frame” (the specification: page 2, lines 10-11 and page 3, line 11), said processor comprising

“a first extraction module implementing a first linear prediction filter for extracting a long-term excitation word from an adaptive coded directory and for calculating an associated long-term gain”, (the specification: Fig. 1 and page 2, lines 12-19; page 3, lines 21-28);

“a second extraction module for extracting a short-term excitation word from a fixed coded directory and for calculating an associated short-term gain” (the specification: Fig. 1 and page 2, lines 12-19),

“a first updating module for updating the adaptive coded directory based upon the extracted long-term excitation word and the extracted short-term excitation word”, (Fig. 1 and page 4, lines 31-32).

But, ADMISSION does not expressly disclose “a second updating module implementing a second filter for filtering the short-term excitation word used for updating a [said first] linear prediction filter”. However, the feature is well known in the art as evidenced by SU who, in the same field of endeavor, discloses ‘speech encoder adaptively applying pitch preprocessing with warping of target signal’ (title) with ‘code-excited linear prediction’ (abstract), comprising ‘the optimum excitation sequence in a codebook using an analysis-by-synthesis search procedure’ (p65 and p600), ‘the impulse response...of the weighted synthesis filter ... $A(z/\gamma_1)/[\tilde{A}(z)A(\gamma_2)]$... by filtering the vector of coefficients of the filter $A(z/\gamma_1)$ extended by zeros through the two

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filters $1/\bar{A}(z)$ and $1/A(\gamma 2)$ ' (p220), wherein $1/\bar{A}(z)$ is a synthesis filter (corresponding to linear prediction filter), and that 'the initial states of these filters updated by filter the difference between the LP residual and the excitation' (p221), which suggests the updating includes synthesis filter $1/\bar{A}(z)$. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify ADMISSION by providing an updating mechanism including filtering the coefficients of the filter $A(z/\gamma 1)$ extended by zeros through the two filters, as taught by SU, for the purpose (motivation) of updating the states of the synthesis and weighting filters in order to compute the target signal for the next subframe (SU: p516).

As per **claim 32** (depending on claim 7), as best understood in view of the rejection under 35 USC 112 2nd, even though ADMISSION in view of SU further discloses "said first extraction module comprises a first weighting filter" (ADMISSION: Fig. 1), ADMISSION in view of SU does not expressly disclose "said second extraction module comprises a second weighting filter and a third weighting filter cascaded together; said first weighting filter having a transfer function in which a denominator thereof is equal to a numerator of a transfer function of said second weighting filter". However, SU discloses 'percept weighting filter' (p65 and equation 3), wherein denominator and numerator is in combined form (in one filter); and 'weighted synthesis filter $A(z/\gamma 1)/[\bar{A}(z)A(\gamma 2)]$... filter $A(z/\gamma 1)$ extended by zeros through the two filters $1/\bar{A}(z)$ and $1/A(\gamma 2)$ ' (p220), suggesting a separate form (implying cascaded filters); 'the adaptive postfilter is the cascade of three filters' (p536). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that two cascaded filters having denominators and numerators with a form $(A/x)(x/C)$, where x is arbitrary, would have equivalent functionality to two cascaded filters with a form $(A/1)(1/C)$ or one filter with a form

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(A/C), and to combine teachings of ADMISSION and SU by providing using one of the alternative filter forms (such as a cascaded form $(A/1)(1/C)$) for the encoder system based on user's preference and/or design choices, because they have equivalent functionality.

As per **claim 33** (depending on claim 32), as best understood in view of the rejection under 35 USC 112 2nd, ADMISSION in view of SU does not expressly disclose "said first and third weighting filters are equal". However, SU discloses 'the weighting filters 219 and 251' being 'equivalent in functionality' (p45), 'the optimum excitation sequence in a codebook using an analysis-by-synthesis search procedure' (p65 and p600), 'percept weighting filter' (p65 and equation 3), 'weighted synthesis filter $A(z/\gamma_1)/[\bar{A}(z)A(\gamma_2)]$... filter $A(z/\gamma_1)$ extended by zeros through the two filters $1/\bar{A}(z)$ and $1/A(\gamma_2)$ ' (p220) in a separate (implying cascaded) form; 'the adaptive postfilter is the cascade of three filters' (p536). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made: (i) to recognize that a filter with a form A/C is equivalent to two cascaded filters with a form $(A/1)(1/C)$, so that ADMISSION in view of SU using the later form for both SU's weighting filters 251 and 268 (Fig. 2) can be read on the claim in a broad sense; or, (ii) to modify ADMISSION combining SU's teachings by providing the equivalent (equal) formant postfilters within blocks 251 and 268 (Fig.2) and further providing at least one tilt compensation filter (p45, p537), for the purpose (motivation) of compensating for the tilt in the formant postfilter (SU: p537).

As per claim 34 (depending on claim 32), as best understood in view of the rejection under 35 USC 112 2nd, ADMISSION in view of SU further discloses "a first formantic weighing filter" and "a second formantic weighing filter" (SU: p66).

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As per **claim 35** (depending on claim 32), as best understood in view of the rejection under 35 USC 112 2nd, ADMISSION in view of SU further discloses that "said second updating module also updates said second and third weighting filters with the short-term excitation word filtered by said second filter", (SU: p221 and p516).

As per **claim 36**, it recites a mobile cell phone. The rejection is based on the same reason described for claim 28, because the claim recites the same or similar limitation(s) as claim 28, except the limitations "an antenna" and 'transmission circuitry connected to said antenna'. However, the features are further disclosed by ADMISSION in view of SU (SU: p25, 'speech telecommunication system 100' and 'cellular telephony embodiments'; p34, 'a cellular telephone'; which necessarily and inherently includes the components/features of the limitations recited above).

As per **claim 40-43** (depending on claim 36) the rejection is based on the same reason described for claims 32-35 respectively, because the claim recites the same or similar limitation(s) as claims 32-35 respectively.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qi Han whose telephone numbers is (571) 272-7604. The examiner can normally be reached on Monday through Thursday from 9:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. For general information about the PAIR system, see <http://pair-direct.uspto.gov>.

QH/qh
March 2, 2007

 3/2/07